

## Insurance and Entrepreneurship: A Conceptual Framework

## INSURANCE AND ENTREPRENEURSHIP: A CONCEPTUAL FRAMEWORK

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Historical and literature reviews as well as considerations on the issue of risk aversion and entrepreneurship show that insurance can reduce uncertainty, protect assets, and ultimately support entrepreneurship and economic activity. Insurance and the various policies have their unified characteristic as a business that has the institutional role of supporting other business activities. Thus the development of insurance is commingled with other economic activities and initiatives and with economic growth. However, the conditions for insurance in emerging markets—and in particular in Latin America and the Caribbean—are not primarily conducive to economic activity and entrepreneurship. There are numerous reasons for this, including institutional shortcomings and insurance premiums that do not reflect fair prices.

The research refers at various areas, e.g., economic growth, financial market, insurance markets, entrepreneurship. The literature explored and provided answers of different links e.g., financial markets and economic growth; financial markets and entrepreneurship; entrepreneurship and economic growth. In fact, financial market development is considered an important determinant of economic growth and for entrepreneurship; entrepreneurship and economic growth are closely related in the sense that entrepreneurship prompts economic growth. However, the links between insurance and entrepreneurship and the contribution of insurance to economic activity and growth, and particularly how insurance supports entrepreneurship still need to be qualified and empirically proved.

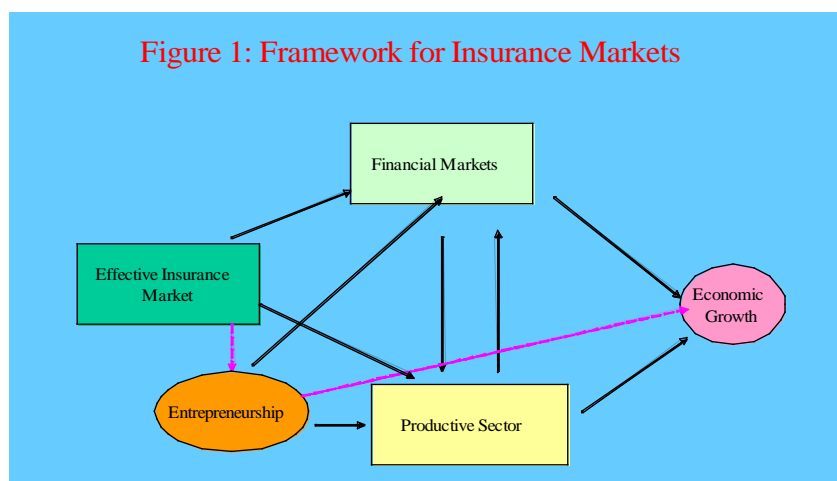


Figure 1 Framework for Insurance Markets

The conceptual framework for the study (see **Figure 1 Framework for Insurance Markets**) shows the interrelationships among economic growth, financial sector, insurance

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market, and entrepreneurship. The interactions between insurance and entrepreneurship constitute unexplored links and represent the area of concentration for this research.

There is an important link among theories, definitions and measures of entrepreneurship (i.e., to different theories and definitions of entrepreneurship correspond various measures assuming that data are available). In turn, different theories and definition and measures of entrepreneurship prompt different implications for public policies (Iversen, Jorgensen, and Malchow-Moller 2007) . By including insurance, the research adds a layer and enriches the public policy role.

In studying the relationship between insurance and entrepreneurship, various categories of actors in economic activity are considered—i.e., large firms, small and medium sized companies (SMEs), entrepreneurs, e.g., start-ups, and micro entrepreneurs, and poor segment of population. Following various authors (Congregado 2010; Iversen, Jorgensen, and Malchow-Moller 2007), the measures that correspond to different types of entrepreneurship are those of SMEs, start-ups and self-employment. Large firms and the poor segment of the population are at the upper and lower end of the scale and are not considered relevant measures of entrepreneurship but are significant in relation to economic activity. Access to financial services, and particularly to insurance, is crucial for these categories of actors, and there is a need for insurance markets to function, provide effective services to their clientele, reduce the overall level of uncertainty and transform it into manageable risk.

Table 1 is based on various empirical researches with some simplification, because the situation in emerging markets varies greatly. Table 1 shows the availability of insurance products in emerging markets compared with that of advanced markets, e.g., the United States, and allows to state the differences between markets where insurance is readily available and other markets where obtaining an insurance policy constitutes a problem. Thus, there is a different treatment among the categories of actors and the insurance coverage available in advanced and in emerging market countries - particularly those in Latin America and the Caribbean, e.g., entrepreneurs and micro entrepreneurs have scarce opportunities to obtain insurance.

**Table 1 Availability of Financial Services and Particularly Insurance to Various Forms of Economic Activity in the United States and in Emerging Markets**

<b>Type of Activity</b>	<b>Availability of Financial Services and Insurance</b>	
	<b>United States</b>	<b>Emerging Markets - Latin America and the Caribbean</b>
Large Firm	Easily available	Available
Small and Medium-Sized Enterprises	Easily available	Scarcely available
Entrepreneurs	Easily available	Scarcely available
Micro entrepreneurs	Available	Scarcely available
Poor People	Incipient	Rarely available

It constitutes the basis to link financial services and insurance with entrepreneurship and make the case that a public policy effort is warranted to develop insurance markets to support economic activity and entrepreneurship. With respect to the situation of insurance and entrepreneurship in Latin America and the Caribbean, in the context of policies to improve institutional settings, Susan L. Segal- President and CEO of Council of the Americas/Americas Society stresses that working on the supply side of insurance availability could help “to create and promote business environments that foster entrepreneurship—from the owner of a store to the creators of technology” (Annual Report, 2008.)

Within this framework, the research explores the relationship between insurance and entrepreneurship from conceptual, historical, and literary points of view, to come up with a testable hypothesis to verify empirically.

### **RISK AVERSION, ENTREPRENEURSHIP AND ECONOMIC ACTIVITY**

There is an extensive literature on risk aversion, wealth, uncertainty, insurance (Bernstein 1998) and entrepreneurship (Schumpeter 1982a). This study ties together the basic concepts of risk, uncertainty, growth, and entrepreneurship in the context of emerging economies. It argues that the reduction of uncertainty increases the willingness of entrepreneurs to undertake initiatives. Thus, the underdevelopment of insurance markets in emerging market countries does not reduce uncertainty and limits the potential of entrepreneurship and economic growth.

Economic actors (i.e., individuals or firms) are said to be risk-neutral if they care only about their expected gains or losses—in other words, the potential magnitude of their gains or losses multiplied by the probability of realizing those gains or suffering those losses. Actors are said to be risk-averse if, confronted with two choices with the same expected value, they would prefer the smaller and more certain of the options. In other words, having X dollars is worth less than losing X dollars. Risk-seeking or risk lovers people are those for whom utility increases as they gamble. Conversely, entrepreneurs—including owners of SMEs—grab opportunities and create economic value added and therefore better fit the profile of risk-neutral or at least less risk-averse people (Baumol 2006 argues that innovative entrepreneurs are risk lovers).

While the uncertainty of business activity, i.e., business success or failure, cannot be insured, pure risks<sup>1</sup>, such as industrial accidents, natural disasters, or product defects, can be insured (Knight 2012). Insurance transforms uncertainty into risk, and thus it reduces the uncertainty of business activity. Though insurance coverage is available at reasonable prices in most mature markets in the developed world, the same is not true in emerging markets. Insurance represents a market institution that operates to make economic initiatives better and more successful.

The level of development of insurance markets in emerging market countries, particularly in Latin America and the Caribbean, is low and uneven. A measure of industrial development - insurance penetration rate or penetration ratio, i.e., Total premiums as a percentage of GDP -

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<sup>1</sup> Pure risk is a category where loss is the only possible outcome; there is no beneficial result.

tells us that insurance markets in emerging markets are immature, risk aversion is also greater due to unsatisfactory institutional settings and lower levels of wealth (e.g., in emerging countries assets lost are a greater proportion of individual's wealth), leading to the under provision of insurance and inefficient forms of insurance. Consequently, the incentives to undertake economic initiatives are reduced and entrepreneurs may move to less productive activities (William J. Baumol 1990a; W.J. Baumol 2006), i.e., entrepreneurs may move to arenas – unproductive- where the payoffs are greater and thus reducing the contribution to economic growth.

Public policy should direct its attention at the conditions of the supply of insurance to improve the institutional setting particularly for entrepreneurs, a known engine of economic growth, according to Schumpeter (Schumpeter 1982a).

### **Risk Aversion in Developed and Emerging Economies**

Demand for insurance can be different depending on the type of insurance (e.g., life, and non-life). Risk attitudes, initial wealth, amount insured, premium levels, probability of occurrence, rate of interest and also demographic structure, e.g., growth and composition of the population, are common to any type of insurance.

The demand for insurance is related to the individual's utility function and risk aversion, which could motivate the individual to purchase insurance when the insurance premium exceeds expected losses. Generally, theory and conventional wisdom suggest that all differences across individuals in observed portfolio composition should reflect differences in risk preferences and that people who are less-risk-averse are more likely to undertake risky initiatives, while risk-averse people are likely to be employees and work for a fixed salary. The earnings of people who are more risk-averse will be less variable but they will end up poorer on average. Guiso and Paiella (Guiso and Paiella 2005) confirm that risk preferences differ across individuals and that these differences have considerable explanatory power for individual decisions (including those related to asset composition, occupation, job changes, and willingness to take risks, such as becoming an entrepreneur). Guiso and Paiella (Guiso and Paiella 2005) show that even risk-averse individuals are less likely to hold insurance. An explanation for this might be that insurance is grossly overpriced and a deficient supervision disrupts the relationship between risk aversion and coverage. Therefore, the lack of a transparent insurance sector and incorrectly and unfair priced insurance products lead people—who might be willing to take greater risks, such as those of starting a business—to be more risk averse than they would be otherwise and be unwilling to undertake risks, including starting a business and assuming the so-called business risk. David S. Evans and Linda S. Leighton (1989, 520–525) argue that individuals with greater assets, wealth and net worth are more likely to switch to self-employment – a measure of entrepreneurship- and assume risk and the uncertainty related to business activity. The studies of insurance demand imply heterogeneity of risk aversion, which is compounded when people do not trust the environment—legal, regulatory and supervisory environment—in which insurance companies operate.

Baur et al. (2004) identify several important general factors that determine the growth of the insurance business, including the level and distribution of wealth, the legal system and

property rights, insurance product availability, regulation and supervision, trust, and risk awareness. Other noneconomic factors that have an impact on the development of insurance are religion, culture, and education.

As a way of example, individuals in emerging economies with a level of wealth of \$10,000 are more risk averse than individuals in developed economies with wealth of \$100,000. In addition, given the situations in emerging countries, the risk of occurrence of damaging events (e.g., fire of house) would be much higher than that of the same event occurring in developed economies. We can compare the situation of a risk of fire of a house in a developed economy where one could have a probability of occurrence of 5% and a probability of losing about 80% of the value of the asset (the house). On the other hand, in the context of an emerging economy the risk of the event occurring would be much greater, e.g., 15% probability with the possibility of losing 100% of all capital and remain poor for the rest of his/her life.

### **Insurance in Emerging Economies**

In case of the event of the fire house, the risk premium in emerging economies is higher than in developed economies. In fact, under certain circumstances, one can show that in emerging economies risk premium represents a very high percentage of wealth (e.g., almost 75% of the wealth), while is much lower in developed economies, e.g., 5%. The results also show that individuals in emerging economies have greater difference between the utilities, i.e., the utility of buying insurance. Normally, buying insurance will leave the risk averse individual better off in terms of expected utility. In emerging countries, given the level of wealth and the cost of insurance as percentage of the wealth and for a number of institutional inefficiencies including the lack of effective insurance markets that reduce the level of trust, e.g., insecurity associated to obtain the indemnity following a claim, individuals do not like to buy insurance products, and tend to be more risk averse than individuals in developed countries and thus insure less and bear more risk in an inefficient form.

In other words, in emerging economies there is a situation of under provision of insurance and individuals avoid undertaking initiatives such as those “entrepreneur” would embark on.

### **Entrepreneurs, Small and Medium Size Enterprises and Insurance**

In terms of entrepreneurship, following various authors (Wennekers and Thurik 1999; Acs and Szerb 2009; Acs 1999; André van Stel, Carree, and Thurik 2005) suggest a U shape relationship between level of entrepreneurship and GDP per capita in a given country, individuals in emerging countries would have a very high opportunity cost to start appropriate entrepreneurial activities and therefore they decide to keep their existing job and maintain the characterization of “entrepreneurs by necessity rather than by opportunity”. From the point of view of the entrepreneur and small and medium size enterprises, the unreliable institutional settings of emerging countries and the low level of “wealth” create an excessive uncertainty that discourage entrepreneurs to initiating or expanding businesses.

Quite the contrary in developed economies – and United States represents the typical example where the institutional setting works and includes the recognition of profit and the widespread use of insurance as an effective market institution to cover various specific aspects of the business activity. In emerging economies, an “additional earning premium” may be necessary to compensate risk averse businesses owners and entrepreneurs for the greater uncertainty associated with their incomes (Hamilton 2000, 605), which given the low level of wealth individuals and companies cannot bear.

The high level of risk premium could be also regarded yet as another indicator that in emerging countries there is a great potential for buying (and selling) insurance, which however is not exploited and insurance markets remain underserved and underdeveloped.

Evidence shows (Masci, Tejerina, and Webb 2007) that economic actors in Latin America tends not to buy insurance due to a number of shortcomings: level of wealth; excessive level of uncertainty, which in turn (Erbas 2004) includes many components: status of the insurance markets; high level of premiums; delays in the satisfaction of claims and lack of transparency and reliability on companies to pay claims; deficiencies of judicial remedies; level of trust; and also cultural and social factors that do not fully recognize and reward profit. All these factors reduce the appeal of insurance in emerging markets. Therefore individuals in emerging economies opt to find inefficient forms of protection avoiding buying insurance.

Moreover, if the intuition of De Soto (De Soto 2003; De Soto 2002) is realized and assets in emerging countries and in Latin American and the Caribbean are correctly recognized and priced, individuals would experience a wealth uplifted and move on the right of the utility curve (wealth on the x and utility index on the y) and also the shape of their utility curves might become less concave with less risk aversion.

### **Risk Aversion and Firms**

The attitude toward risk of firms reflects that of their managers, employees, and shareholders. To the extent that the managers and employees of a firm are risk averse and that their rewards (or positions) are tied to the firm's performance, they will want the firm to behave in a risk-averse way. One would therefore expect a tendency for firms to avoid risks jeopardizing their profitability or their assets. However, in developed economies, firms operate under greater competition that requires innovation and initiative. Moreover, to the extent that shareholders hold well-diversified portfolios, they will not be much concerned about the risks borne by a firm (since the risks of different firms in a portfolio will tend to cancel one another). Consequently, shareholders will often wish firms to be operated in an approximately risk-neutral manner, and firms will be operated in that way insofar as shareholders exercise oversight over managers and employees and by buying and selling the stock of companies cast their confidence vote. Under these circumstances, there is evidence that in advanced economies such as that of the United States independent entrepreneurs and small companies rather than large companies provide a disproportionate share of radical innovations.

However, in emerging countries with underdeveloped capital markets, there is very little stockholders can do to influence management and thus the tendency of companies, which operate

in a much less competitive environment, is more towards behaving in a risk averse fashion than being risk neutral or less risk averse, and consequently avoiding undertaking “entrepreneurial” attitudes directed to “grab” opportunities as well as passing up “uncertain” business initiatives.

### Negative Externalities and the Under Provision of Insurance

Schumpeter (1982) states that entrepreneurship and innovation prompts economic growth. In advanced economies such as in the United States independent entrepreneurs and small companies provide a disproportionate share of radical innovations (William J. Baumol 2004) compared to what large companies provide. Thus it is important that public policies are directed to introduce policies and instruments that favor entrepreneurs and SMEs.

The under provision of insurance, which includes policies offered at above fair actuarial price, to entrepreneurs and SMEs contributes to three negative impacts: reduced economic growth; stability of jobs; and increased informality.

Given that in emerging economies financial and insurance markets are not mature and due to the low value of wealth, entrepreneurs and SMEs – normally risk neutral (or less risk averse) - become more risk averse and less prone to new initiatives and innovation. Thus the excessive uncertainty and under provision of insurance, existing in emerging countries (and in Brazil), have negative externalities in reducing economic growth that entrepreneurs and SMEs propel. In other words, in emerging markets, e.g., in Brazil or Peru, *ceteris paribus*, there is less economic growth driven by entrepreneurs and SMEs, than there is in developed nations with mature insurance markets and less risk averse entrepreneurs.

In addition, SMEs, entrepreneurs and startups and micro-entrepreneurs provide a large part of jobs in the economy. According to Instituto Brasileiro de Geografia e Estatística (IBGE), in Brazil, SMEs provide 45% of formal sector jobs and the majority of informal jobs, which are 40% of all jobs. Greater availability of insurance products and propensity to buy insurance contracts would assure better management and stability to these companies and to the jobs created. Also insured SMEs have a lower probability of going bankrupt, as SME owners may pass out some of the risks they feel uncomfortable withholding.

A third negative “externality” is the shadow economy. Micro-companies, the smallest SMEs, hold jobs for 10 million self-employed entrepreneurs. According to the data of the IBGE, 92% of those earn less than BRL<sup>2</sup>1,000 per month and are beneath the lowest income tax bracket. Thus, 8% of these companies should be paying taxes. These companies start paying taxes when an external factor leads them to formality, e.g., a SME or micro company needs to give a receipt; open a bank account; borrow funds. The availability of insurance products fairly priced would become a factor that takes companies out of informality and being entrepreneurs by necessity and put them on a sustainable growth path.

### Risk Aversion and Social Welfare

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<sup>2</sup> BRL Brailian Real

From a societal point of view, the distinction among various categories of attitudes towards risks implies that the distribution or allocation of risk between risk averse and risk neutral or less risk averse individuals will itself affect social welfare. Specifically, and assuming for convenience that social welfare is the sum of parties' expected utilities, the shifting of risks from the risk averse to the risk neutral, or, generally, from the more to the less risk averse will raise social welfare. This is because the bearing of risk by the more risk averse would result in a greater reduction in their expected utility than will the bearing of risk by the less risk averse, or by the risk neutral. Indeed, for this reason, it is always possible for the more risk averse to pay the less risk averse or the risk neutral to assume risk, so as to leave both better off in terms of expected utility<sup>3</sup>.

Social welfare is raised not only by the complete shifting of risks from the more to the less risk averse or to the risk neutral, but also by the sharing of risks among risk-averse parties. Sharing risks reduces the magnitude of the potential loss that any one of them might suffer.

It is also argued that a proper allocation of risk raises social welfare not only directly, by reducing the risk borne by the risk averse, but also indirectly, by making the risk averse willing to engage in socially desirable, risky activities. Thus, for example, an individual may decide to undertake a promising business venture only because he has partners with whom he can share the risk.

However, the shifting of the risk for social welfare may not help to create the incentives for a supply of risk neutral individuals. Quite the contrary, redistribution policies may reduce the incentive of being risk neutral and entrepreneurs may have little incentives to undertake risky businesses. Ilmakunnas and Kanninen (2001) suggest that economic risks shape the allocation of human capital between entrepreneurs and the labor supply. Using international panel data for a set of OECD countries, they study the interaction between private enterprise formation, entrepreneurship, and the public sector. Their results confirm the Knightian view of entrepreneurs as risk takers and that "business risk" is not insurable—i.e., the failure risk of entrepreneurs is not covered. Another important finding is that the availability of differential social risk insurance points to the conclusion that the welfare state implies increases of public spending as well as social regulation that creates detrimental incentive effects on risk taking in the form of entrepreneurship.

Emerging countries have been putting in place several forms of social welfare and social protection. The model of Ilmakunnas and Kanninen (2001) could provide similar results for the emerging countries. Thus the transfer of risks in a social welfare context may have detrimental short and long term effects on emerging countries as the incentives for undertaking productive and risky business activity will be reduced and consequently the supply of risk neutral individuals may dry up, as they may feel used for transfer collective risk rather than undertaking private risk. This type of policies may substantially penalize the entrepreneurs who are potentially those more willing to undertake business activities and risks and thus promote economic growth.

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<sup>3</sup> see <http://cyber.law.harvard.edu/bridge/LawEconomics/risk.htm>



## The Basic Theory of Insurance

Insurance - pooling and transfer of risks- assumes that there are many risk averse insured individuals facing identical, independent risks of loss that can be covered by insurance, i.e., become insured. There are three ways to handle existing risks<sup>4</sup>: retain the risk; avoid the risk; and transfer the risk. Transferring the risk is insurance. Retaining the risk -without transferring it - is self-insurance, i.e., bearing the cost of the loss in entirety. Avoiding the risk is the decision not to be in a situation of facing risk. Transferring the risk occurs buying an insurance policy that makes a third party – the insurance company – liable for payments related to the cost of the risk where the insurance company is contractually obligated to pay any damages to the injured party to the extent of the contract you have entered into with the insurance company. Further assuming that there are no administrative expenses associated with the insurer's operations, the basic theory of insurance implies that the insurer can be virtually sure of covering its costs by collecting from each insured the expected value of the amount it will have to pay him. If, for instance, each insured faces a 5 percent risk of losing \$10,000 and will be paid that amount in the event of a loss under the insurance policy, the insurer can cover its costs by collecting premiums of \$500. The premium of \$500 - and, in general, the expected value of the amount the insurer has to pay the insured - is often called the actuarially fair premium. If the premium equals the actuarially fair amount plus any small additional amount (even, say, 0.0001), then the probability that the insurer will cover its costs approaches 100 percent as the number of insured grows large. Thus, it is routine in the analysis of insurance that the insurer can cover its costs by charging the actuarially fair premium, see <http://cyber.law.harvard.edu/bridge/LawEconomics/risk.htm>.

The purpose of insurance is to always meet claims, i.e., the insurer's risks. Insurers are exposed to a number of solvency risks, which are either technical, or investment related.

Technical risks are of two types: underpricing and under provisioning. Underpricing occurs when the insurer attracts buyers by setting excessively low premiums that do not cover the expected claims. Technical reserves represent the largest share of an insurer's debt, and they are a measure of an underwriter's obligations to its policyholders. In case of under provision, the technical reserve is inadequate to meet the obligations.

Investment risk is generated by the insurer's role as a financial intermediary and reflects how the insurer's exposure to insolvency resembles a bank's.

Market failure is threatened when the market price does not reflect the insolvency risk. In a world of perfect information, economic theory presumes that competition and rational behavior ensure that risk is reflected in consumers' willingness to pay, thereby inducing efficient risk management among insurers. To correctly assess the insurer's solvency, however, the buyer should have accurate data on the joint distribution of loss claims, the return on the insurer's asset portfolio, and the technical reserves that the insurer will hold when benefits are paid. In practice,

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<sup>4</sup> Existing risk is what distinguishes gambling from insurance. Gambling introduces risk where none exists. Insurance mitigates risk where risk exists. Gambling creates a risk situation that offers an opportunity for gain as well as for loss. Insurance deals with "pure" risk. With pure risk there is the possibility that a certain event will occur, e.g., accident or sickness. In addition, the purpose of insurance is to restore the insured to his original position, not to afford the injured person the possibility of making a profit. Gambling can provide a gain, while in insurance there is no possibility of gain.

however, because such information is costly or unavailable for buyers, it is plausible to think that they cannot fully assess the financial strength of their insurer or the quality of the insurance contract.

In addition to technical and investment risks, the insurer is also exposed to the possibility of default by a partner (e.g., a reinsurer), or of mismanagement, as well as to systemic risk. Conversely, the insurer cannot fully assess the nature of the specific risks of the potential insured and cannot control his or her actions.

### The Limits of Insurance

The review of the role of insurance in economic activity seems to suggest that there is an “optimal point” of development of insurance markets, at which insurance may become easily available and there might be negative externalities associated with social insurance. This consideration about the optimum point of insurance development is also based on the empirical evidence that there is a level of GDP per capita of approximately \$15,000 for life and \$10,000 for non-life insurance, at which the income elasticity of the demand for insurance reaches its maximum.

There are currently three major types of insurance growth models available. The first type is the simple linear model, the second is the logarithmic linear model and the third one is the logistic model. Each type has some advantages as well as limitations, but comparatively the logistic model is superior to the first two models for this research.

Carter and Dickinson (Carter and Dickinson 1992) and Enz (2000) developed a logistic model to depict the relationship between insurance penetration and GDP per capita labeled the “ordinary growth model”. Using a large amount of historical data, the “ordinary growth model” allows to estimate the growth of insurance. Enz (2000) identified the ‘S-curve’, i.e., relation between insurance and GDP per capita, which constitutes a measure of the degree that a certain insurance product (covering individual or group risk) is acquired whereby the income elasticity of demand for insurance can be as high as two for intermediate income levels. Most countries deviate from the average S-curve because of factors such as high catastrophe risk, institutional arrangements, regulations on motor insurance etc., but in general the theory predicts that the income elasticity of demand will be highest around \$10,000- \$15,000 of per-capita income.

The expression of the ordinary growth model is the following:

$$Y = \frac{1}{C_1 + C_2 C_3 X} + e$$

where Y is the insurance penetration, X is the GDP per capita, C1, C2 and C3 are three parameters, and e is the residual, Enz (2000) uses the formula, see below.

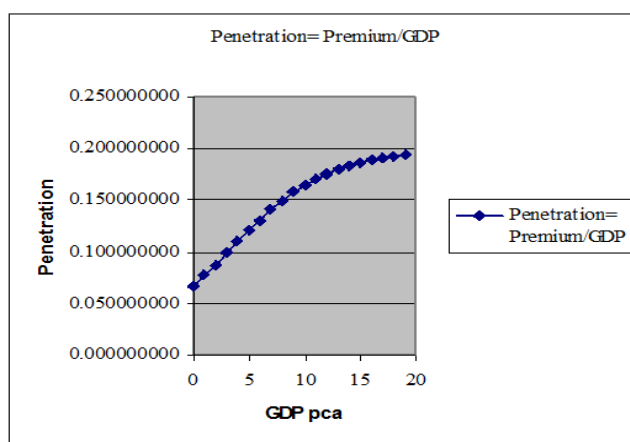
Against this background, insurance penetration, i.e., Premiums/GDP, or premium volume as a share of a country’s gross domestic product, is used to measure the degree that a certain insurance product (covering individual or group risk) is acquired in the population, normally

insurance penetration varies between 0.4 percent and 15.5 percent. In 2006, insurance penetration worldwide for life insurance policies was the level 2.2% and at 1.4 percent for non-life. The level of penetration tends to rise as income increases, particularly in life insurance. In countries with similar income levels, however, insurance penetration can differ significantly as a result of the different ways in which government provided old-age pensions. In 2007, Global per-capita expenditure on insurance (a form of insurance density, i.e., ratio of premium over population) was estimated on average US\$ 431, of which US\$ 247 was spent on life insurance and US\$ 184 on non-life insurance. The industrialized countries spent between US\$ 1200 and US\$ 4700 per capita on insurance, whereby the share of life insurance was often over half of total expenditure. In the developing countries, typical expenditure in 2007 less than US\$ 50, with, in most cases, more than 75 percent being spent on non-life insurance, (i.e., around 30 US\$) (Swiss.Re Sigma various years).

As shown in Figure 1, the insurance penetration curve, i.e., Premiums/GDP, is an S-curve increasing and then becoming asymptotic. This means that income elasticity is initially increasing and then declining rather than remaining constant. This assessment derives from Enz (2000) and can be interpreted that the increase in insurance penetration (life insurance and non-life insurance) has a limit as GDP grows.

For our purpose, the work of Enz seems to suggest that we would not reach a situation where “uncertainty” is eliminated, which would make the function of the Knightian entrepreneur disappear. It also highlights that at low levels of GDP, insurance is not relevant for business activity. However, as GDP starts to increase, the need for insurance becomes more important. This points to the question of causality: is insurance causing economic growth or vice versa; or do the two forces, insurance and economic growth, reinforce themselves in an endogenous process? Moreover, the S curve indicates that insurance has a potential for growth, particularly at lower levels of income, which is exactly the demand of the poor segment of the population in emerging market countries.

**Figure: Insurance Penetration Curve**



Note: The graph in the Figure is derived from Enz (2000) following the logistic formula:  

$$\text{Penetration (Premium/GDP)} = 1 / (1 + [C2 * (C3)^{\text{GDP}}])$$

A look at insurance penetration shows that access to insurance varies greatly around the world today (and specific coverage such as for catastrophic events is still scarcely available in Africa, Asia, and Latin America). Of the four billion people worldwide who earn less than two dollars a day, only ten million are able to purchase insurance. In fact, the S-curve relationship between GDP and life and non-life insurance helps to identify four stages of insurance market development, which most insurance markets follow: dormant, early growth, sustained growth, and mature growth (USAID 2006). These findings confirm the huge potential of the poor, and that in emerging market countries, where the poor are concentrated; there is still a vast margin for insurance market development that would lead to welfare gains (Howe et al. 2001) (SwissRe 2010).

According to Munich-Re (2006), there are three essential reasons for this. Firstly, many people are unable to afford insurance on account of their low income. Secondly, the infrastructure needed to give the people requiring protection access to insurance is frequently lacking, especially in rural areas. And thirdly, the concept of insurance and the principle of solidarity underlying it are virtually unknown in some cultures.

The S curve also indicates the stages of development of insurance market. One can imagine vertical lines that delineate the four stages of development that most insurance markets go through: dormant, early growth, sustained growth and mature. The scatterplot reveals changes in insurance and economic development over time, as well as across countries. This general relationship is reviewed in Swiss.Re (2004), Erbaş and Sayers (2006), and Outreville (1996).

In the context of insurance penetration and the role of insurance at different stages of economic growth, a new method is introduced, i.e., the “BRIP”, whose calculation is based on the “insurance growth model” (Zheng, Liu, and Deng 2009).

While insurance penetration is used to measure the degree that a certain insurance product (covering individual or group risk) is acquired in the population, the “Benchmark Ratio of Insurance Penetration” or BRIP is a measure of the “benchmark-adjusted insurance growth level”. More specifically, the BRIP evaluates the relative relationship between a country’s insurance penetration and the world’s average penetration at an economic level equal to the country’s GDP per capita. If we define “the world average insurance penetration at the same economic level” as “benchmark penetration”, a country’s BRIP can be calculated as follows:

$$\text{BRIP} = \frac{\text{actual penetration}}{\text{benchmark penetration}} \times 100\%$$

The denominator, “benchmark penetration”, refers to “the world average insurance penetration at a country’s economic level” and the numerator, “actual penetration”, refers to a country’s actual penetration, i.e., Premium/GDP.

To review the concepts, insurance density is an adjustment to premium income by adding the “population factor”; insurance penetration is an adjustment to insurance density by taking into account the “economic factor”; and BRIP is a “benchmark” adjustment to insurance penetration, with the key being to recognize the important rule that different stages of economic development are accompanied by different insurance penetrations. Therefore, the BRIP

represents the comparable “economic-adjusted insurance growth level” and is a more reasonable indicator for the international comparison of insurance among countries than premium, insurance density and insurance penetration (Zheng, Liu, and Deng 2009). The calculation of the BRIP of a country follows three steps.

First, use an appropriate model to calculate the “benchmark penetration” for the country, which is the “world’s average penetration at a country’s economic level”.

Second, calculate that country’s actual penetration. Third, divide the actual penetration by the benchmark penetration and obtain the value of BRIP.

The results of the exercise (Zheng, Liu, and Deng 2009, 95) confirm the relationship between insurance penetration and economic growth, and are quite interesting in terms of the potential for insurance for emerging countries.

Here the results of Zheng, Liu, and Deng (2009):

Measured by insurance density, the average ranking of developed markets (18 per cent) is markedly ahead of that of developing markets (67 per cent), with a difference of 49 percentage points. Measured by insurance penetration, the average ranking of developed markets (26 per cent) is also ahead of that of developing markets (63 per cent), with a smaller gap of 37 percentage points. Measured by BRIP, the disparity between the average ranking of developed markets (42 per cent) and that of developing markets (55 per cent) decreases further, with a gap of 13 percentage points.

The average ranking of emerging markets (48 per cent) is quite close to that of developed markets, with a lag of only 6 percentage points, and that of BRIC (37 per cent) is even ahead of that of developed markets by 5 per cent. Meanwhile, the G7 group is still at the top (32 per cent).

As mentioned above, the BRIP represents the “economic-adjusted insurance growth level” and is thus a more reasonable indicator for international insurance comparison.

Therefore, the BRIP is more convincing as a measurement of insurance growth than traditional indicators. As the new indicator BRIP implies, the ranking of developed markets declines remarkably, while that of the developing markets increases remarkably, so that the comparative advantage of developed markets over developing markets decreases. Furthermore, the performances of emerging markets in developing markets, especially BRIC, are outstanding.

In summation, as is revealed by the analysis above, we should have a new recognition of the international insurance growth pattern: under the new indicator, BRIP, the relative level of insurance growth in developed markets in 2007 has declined as compared with that indicated by traditional indicators, and the relative level of insurance growth in developing markets has increased, with the emerging markets and BRIC countries (Brazil, Russia, India and China) outperforming.

## CONSIDERATIONS

Under the circumstances described above, individuals in emerging economies lose on all fronts: they are more risk averse, i.e., their measure of risk aversion is higher; they have to pay greater risk premium with respect to their wealth; they have to recur to inefficient forms of insurance; and in the case of the event occurring their wealth can be wiped out. From the point of view of companies, the lack of sophisticated capital markets and the limited role reserved to stockholders suggest that companies would be more risk averse than risk neutral. From the point of view of entrepreneurs, SMEs, and micro-companies, the under provision of insurance creates negative “externalities” in terms of economic growth, jobs and formality. Also transfers due to social welfare may reduce the incentives for entrepreneurs.

Thus, one of the most important points that emerge from the discussion above is that risk aversion is greater in emerging countries due to the unsatisfactory institutional settings and the lower level of wealth. This happens up to a level of income per capita as indicated by the penetration ratio or the new BRIP, which, however, shows the potential that emerging countries present for insurance development. This situation leads to under provision of insurance and to the use of inefficient forms of insurance.

The relationship between institutional settings, wealth, risk aversion and insurance takes us to the question: Is the capitalist function distinct from the entrepreneurial function in modern economies? Or does a person have to be wealthy before he or she can start a business?

Knight (2010) and Schumpeter (1982) held different views on the answer to this question (see literature review below). The empirical findings of Evans and Jovanovic (1989) side with Knight: liquidity constraints bind, and a would-be entrepreneur must bear most of the risk inherent in his venture. This seems also to confirm the reasoning with the utility functions and the indifference curves, which implies that at higher levels of wealth risk aversion is declining. The data of Evans and Jovanovic (1989) show that wealthier people are more inclined to take risks and become entrepreneurs, i.e., wealth is an important determinant of business startups due to liquidity constraints and therefore rich and wealthy people are more likely to undertake economic activity. In principle, this could be so because the wealthy tend to make better entrepreneurs, but the data do not support this explanation. Instead, the data point to liquidity constraints: capital is essential for starting a business, and liquidity constraints tend to exclude those with insufficient funds at their disposal. Cramer et al. (2002) argue that entrepreneurship is historically associated with risk bearing. Consequently, risk attitude is widely believed to affect the selection of individuals into entrepreneurial positions. The data that Cramer et al. (2002) use in the empirical analysis support the allegedly negative effect of risk-aversion on entrepreneurship choice. Wagner (2002) shows that a high degree of risk aversion and lack of personal contacts reduce the probability of starting one's own business. A favorable "regional entrepreneurial milieu" (proxied by higher levels of current start-up activity and larger shares of unemployed among the starters in a region) has a positive effect on the individual propensity to step into self-employment. All these impacts are not only statistically significant, but economically important, too. Kamhon Kan and Wei-Der Tsai (2006) empirically examine the effect of wealth on the transition into self-employment, while allowing for the effect of risk aversion. Their empirical findings confirm the results of Evans and Jovanovic (1989), i.e., wealth

has a positive effect on business startups even allowing for the confounding effects of risk aversion.

Against this background, the development of the insurance markets in emerging countries, i.e., insurance products more responsive, effective and fairly priced, would smooth the shape of the utility function with respect to risk (shifting of the line) and help to create the conditions to undertake business activities and initiatives and encourage entrepreneurship. This policy also constitutes a push for capital market formation as institutional investors like insurance companies would represent a potent instrument to transfer savings into productive purposes and also operate to discipline and monitor the markets. These considerations are in line with (Leibenstein 1968, 83) who suggests that developmental economists focus their attention on studying the gaps, obstructions and impediments to the initiatives – gap fillings as he calls them – of the potential entrepreneurs.

On the other hand, if the intuition of (Soto 2003; Soto 2002) is pursued and the dead capital is valued, then the increased wealth would also increase the demand of insurance (Enz 2000) and permit to move along the line and demand more insurance.

Thus the two types of policies of more effective insurance markets and property rights for the “hidden capital” should be pursued in parallel.

Moreover, looking at the U-shaped relationship between start-up rates of enterprise and levels of economic development (Wennekers and Thurik 1999; André van Stel, Carree, and Thurik 2005) self-employment – one of the proxies of entrepreneurship- varies negatively and statistically significantly with per-capita gross national product, negatively with manufacturing value added as a percent of gross national product, and positively and statistically significantly with service value added as a percent of gross national product. Applying this model to Latin American countries some authors (Acs and Amorós 2008, 13) argue in favor of pursuing policies leading to an entrepreneurial society in six most advanced countries in Latin America (i.e., Argentina, Brazil, Chile, Colombia, Mexico and Venezuela) that are close to the bottom of the U shape curve and ready for an entrepreneurial drive: “All the same the implications to develop the entrepreneurial activity in Latin America go beyond achieving an efficiency-driven economy stage. They uphold high-expectation entrepreneurial activity (dynamic new ventures) that may reflect a better performance of the competitiveness and economic development”.

This analysis provides ground to argue that effective insurance markets are necessary for financial market development and for the activities of the productive sector. In both cases economic growth is supported through the intermediation of entrepreneurship.

Based on these considerations, a research and policy focus on the relationship between insurance and economic activity and entrepreneurship and whether insurance supports economic activity and entrepreneurship particularly in Latin America and the Caribbean environment is promising and rewarding. Along these lines, several specific and parallel inquiries would need study and empirical verification, e.g., the factors that prevent economic operators from buying insurance products; the effectiveness of insurance market in emerging countries and in particular in Latin America and the Caribbean; and whether social insurance has a negative influence over entrepreneurship.

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